UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, ILLINOIS 60604

DATE: APR 1 2016

SUBJECT: CLEAN AIR ACT INSPECTION REPORT
Arbor Hills Landfill, Northville, Michigan

FROM: Kenneth Ruffatto, Environmental Engineer
AECAB (IL/IN)

THRU: Nathan Frank, Section Chief
AECAB (IL/IN)

TO: File

BASIC INFORMATION

Facility Name: Arbor Hills Landfill

Facility Location: 10690 W. Six Mile Road, Northville, Michigan

Date of Inspection: February 16, 2016

Lead Inspector: Kenneth Ruffatto, Environmental Engineer

Other Attendees:

1. Scott Hamilton, Environmental Scientist
2. Bilal Qazzaz, Life Scientist
3. Diane Kavanaugh Vetort, Michigan DEQ
4. Scott Miller, Michigan DEQ
5. Alex Whitlow, Michigan DEQ
6. Jerry Krawiec, Michigan DEQ
7. Thomas Flannagan, General Manager, Advanced Disposal
8. Jennifer Baker, Director of Environmental Compliance, BEL Environmental Engineering

Purpose of Inspection: This inspection was to address various odor complaints coming from nearby neighbors of the facility.

Facility Type: Landfill

Regulations Central to Inspection: NSPS Subpart WWW; NESHAP Subpart AAAA

Arrival Time: 3:00PM
Departure Time: 5:30PM

Inspection Type:
☒ Unannounced Inspection
☐ Announced Inspection

OPENING CONFERENCE

☒ Credentials Presented
☒ CBI warning to facility provided

The following information was obtained verbally from Thomas Flannagan or Jennifer Baker unless otherwise noted.

Process Description:
The Arbor Hills Landfill is 337 acres with an estimated 46.2 million Megagrams of waste in place from its beginning in 1970. The landfill collects approximately 10,000 tons per day of municipal solid waste and construction and demolition waste and a maximum of approximately 100 tons per day of friable waste. The facility is broken up into an East and West portion. The East portion of the landfill is closed and unlined but is covered with no intention of expansion. The West portion of the landfill is active with a planned six total cells. Cell 4 is the newest cell constructed and started accepting waste in May 2014 on the northwest end of the landfill; Cell 6 is planned for future expansion. Advanced Disposal is putting grades to the top of the landfill which may cause overlap between East and West portions. The cells in the active portion have an interim cover of soil. The entire landfill is covered by over 300 active gas collection wells. All wells are vertical active wells except for a series of horizontal wells drilled to collect gas where the West portion of the landfill overlaps the closed East portion; this allows gas to still be drawn from the overlapped East portion without compromising its cover. Due to monitoring exceedances and other maintenance activities, various new wells are installed nearby existing wells as well as existing wells redrilled to ensure adequate gas extraction. A new wellfield of 15 wells was put into Cell 4 as well as a clay liner placed between the old cells and Cell 4 to mitigate odors. All of the wells are connected to header lines that meet and lead to the Fortistar landfill gas to energy (LFGTE) facility on the south end of the landfill. According to the landfills Gas Collection and Control System Design Plan, the LFGTE facility has three gas turbines and one steam turbine used for electrical generation. The plant is capable of a gross output of approximately 23 MW of electricity at an average landfill gas flow of approximately 7,000 scfm. The LFGTE facility also has two enclosed flares with a total capacity of 11,000 scfm of landfill gas at 50% methane that are used as backups when the facility is off-line.

Staff Interview: Currently the permitted facility operates under three companies. The landfill is owned by Advanced Disposal, the gas collection system is owned by Republic Services, and the gas control system is owned by Fortistar. To ensure communication between all companies, monthly meetings are done to discuss problems and future actions. CB&I are contracted to do all well monitoring and have a dedicated individual to do monitoring daily. New wells were installed near Cell 4, where odors were suspected to be coming from and 11 out of 15 were

online during the inspection. Wells have leachate and gas hook-ups and some have high water levels. Leachate is sent to two lift stations and is sent for treatment in Detroit. Waste is no longer being placed on top of the landfill and Advanced Disposal is now putting grades up to the top. A portion of the landfill was capped prematurely and is now undergoing recapping. Various odor complaints has left the landfill doing construction to mitigate the odors. Projects included voluntarily placing gas collection wells in the new waste area prior to their NSPS requirement and also installing a clay liner between the old and new cells.

TOUR INFORMATION

EPA toured the facility: Yes

Data Collected and Observations:
EPA toured the landfill site by all available access roads. We saw multiple gas collection wells in both closed and active portion of the landfill. Friable waste was being moved on the top of the landfill and covered with soil. Multiple new wells were being drilled and land being prepared for drilling, and a few old wells were being redrilled. The new Cell 4 was under construction and workers were hooking up active wells to the main header line to attempt to further mitigate odors.

The FLIR camera was used to detect VOCs or gas escaping from the cover, wells, or cells. No leaks were seen with this camera.

Field Measurements: were taken during this inspection.

- Field measurements using Region 5 Air Toxics GMAP were taken for methane and hydrogen sulfide. Measurements were taken both on and off site.

RECORDS REVIEW

- Gas Collection System Maps
- Overhead Landfill Photographs

CLOSING CONFERENCE

Requested documents:

- Gas Collection and Control System (GCCS) Design Plan
- Design Capacity Report including waste-in-place and waste acceptance rate
- Initial Performance Test of GCCS
- Records for the past year of equipment monitoring parameters including wellhead parameters, control device parameters (flow, heat sensing device), and surface emission monitoring results
- Up-to-date plot map showing wells/collectors including a list of when collectors were installed
- All exceedances of collection and control system

Concerns: An odor issue was identified and communicated to the landfill. The landfill gave multilple corrective actions they were taking to mitigate the odor as much as possible. EPA also notified the facility of methane levels detected in ambient air right outside the fenceline of the landfill.

SIGNATURES

Lead Inspector: Kenneth Ruffatto Date: 3/8/2016

Section Chief: Matt C. Date: 4/1/16

APPENDICES AND ATTACHMENTS

- Appendix A: Media (Photos)
- Appendix B: GMAP Data Collected

Facility Name: Arbor Hills Landfill
Facility Location: 10690 W. Six Mile Road, Northville, Michigan
Date of Inspection: February 16, 2016

APPENDIX A: MEDIA (PHOTOS)

The following is a list of photographs contained in the attached CD.

Photo No.	Time:	Description:
0001	3:34PM	Trench for connecting wells to main header
0002	3:36PM	Continuation of trench from 0001
0003	3:36PM	Well near active site
0004	3:40PM	Active location on Northwest side of landfill
0005	3:41PM	Soil mixed with new waste
0006	3:42PM	New waste placed in active cell
0007	3:43PM	Wellhead on covered portion of landfill
0008	3:44PM	Southwest side of landfill
0009	3:46PM	Drilling for well near active portion of landfill
0010	3:54PM	Overlooking neighborhood east of landfill
0011	4:00PM	Fortistar gas to energy plant on south end
0012	4:10PM	West side of landfill
0013	4:17PM	Southwest end of landfill
0014	4:19PM	Gas to energy plant side view

Facility Name: Arbor Hills Landfill
Facility Location: 10690 W. Six Mile Road, Northville, Michigan
Date of Inspection: February 16, 2016

APPENDIX B: GMAP DATA RESULTS

Data summaries are included on the attached CD. The following information is for the GMAP system used during sampling:

General Instrument Background	
Collection Equipment	Picarro G2204, SN 2267-BFADS2013
Analytical/Field Method	Cavity Ringdown Spectroscopy; GMAP SOP R5-ARD-0002-r1; QAPP V2 0 2015-03-25
Calibration Data	Gas Standards (CH4 SN BR0008115 @ 10.16 ppm; H2S SN FF43010 @ 49.78 ppm; H2S SN XL001833B @ 5.261 ppm)

Site Specific Information	
Environmental Conditions	2/16/2016 – WNW wind 5-10 cloudy low ceiling; 2/17/2016 - NNW wind 5-10 sunny